

REMARKS

This paper is responsive to the Office Action mailed November 16, 2007. Claims 1-17 are pending in the above-identified application. No amendments to the claims are offered herein. The foregoing amendment to the specification is submitted to correct a typo-graphical error. Reconsideration of the claims in view of the following remarks is respectfully requested.

Claim Rejections Under 35 U.S.C. §103(a)

Claims 1-17 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,447,432 to Andreiko *et al.* (hereinafter "Andreiko"). The rejections are respectfully traversed, for example, as the cited reference simply fails to teach or suggest each element of the presently claimed invention, thereby precluding a case of *prima facie* obviousness.

The presently claimed invention provides computer-implemented methods for reviewing tooth arrangements. As recited in independent claim 1, the method comprising maintaining a digital data set representing a three-dimensional graphical representation of a patient's teeth in a host computer; electronically transmitting the digital data set to a viewing computer; displaying the three-dimensional graphical representation on the viewing computer to a treating clinician; altering a rendered image by manipulating the image graphically so as to generate changes to the graphical representation; and electronically transmitting data comprising the changes to the graphical representation from the viewing computer to the host computer.

As will be recognized from the specification and figures of the application as originally filed, the presently claimed invention provides numerous advantages. See, e.g., paragraphs 180-198 of published application. For example, the invention advantageously provides treating clinicians (i.e., the patient's doctor, orthodontist, etc.) the ability to receive, graphically view, and interact with an orthodontic treatment plan, including three-dimensional representations of the patient's teeth, thereby providing a visually based platform for improved reviewing of a variety of aspects of a treatment plan, and optionally making modification, alterations and/or comments to a treatment plan where appropriate. Following clinician review/input/modification, aspects of the treatment plan can be transmitted back to the host

computer, for example, for treatment plan finalization or modification. Thus, the present invention provides a powerful tool by which an existing treatment plan may be reviewed by a clinician, and comment/alterations/modifications made by the clinician and sent back to the host for improved treatment planning.

The cited reference to Andreiko fails to teach numerous aspects of the claimed invention. Rather than teaching a method where a graphical representations are received by a treating clinician computer, and displayed and altered before electronically transmitting changes back to the host computer, Andreiko discloses custom orthodontic appliance design/manufacturing system employing a one-way flow of information, but which does not provide the ability for clinician viewing and interaction/alteration of the treatment plan. In Andreiko, while data representing the current positions of the patients teeth is digitized for use in the subsequent calculation of final positions for the patient's teeth (see Col. 25, lines 55-57), the calculation of final positions for the patient's teeth is performed subsequent to the input process, without any further interaction with the treating clinician. As such, Andreiko fails to teach or suggest various elements of the current claims, including electronically transmitting the digital data set to a viewing computer, displaying the three-dimensional graphical representation on the viewing computer to a treating clinician; altering a rendered image by manipulating the image graphically so as to generate changes to the graphical representation; and electronically transmitting data comprising the changes to the graphical representation from the viewing computer to the host computer, as recited in claim 1.

Moreover, Applicants agree with the acknowledgement that Andreiko does not teach altering a rendered image as recited in claim 1 (see page 3 of Office action), but respectfully disagree with the assertion (citing column 25, line 53 to column 29, line 22; and figures 3C and 6E) that Andreiko' Analysis and Tooth Positioning procedure suggests this aspect of the claimed invention. The cited portion and figures of Andreiko instead focus on the calculating of finished tooth positions, including the selection of landmark points from two-dimensional profiles that are then used to determine the subsequent rotation of the two-dimension profiles in accordance with discussed seed values. While some display and positioning of two-dimensional profiles of the patient's teeth is taught in the initial calculation,

nowhere in the voluminous citation does Andreiko teach or suggest transmitting an image to a viewing computer for viewing/reviewing and alteration of the graphical representation, e.g., during treating clinician review of a treatment plan. The display and rotation of 2-D profiles in Andreiko would fail to teach or suggest altering a rendered image by manipulating the image graphically so as to generate changes to the graphical representation and the steps specifically recited in current claim 1. In particular, the cited portion of Andreiko neither teaches nor suggests electronically transmitting a 3-D graphical representation to a viewing computer, displaying of a three-dimensional graphical representation to a treating clinician, or altering the rendered image by manipulating a rendered image graphically so as to generate changes to the recited graphical representation, as recited in claim 1.

Applicants further respectfully disagree with the statement that Andreiko's "interactive adjustment of teeth" at column 14, lines 19-24 would teach graphical representation of teeth moving from initial positions to final positions, as alleged (see Office action page 3). The cited provision instead appears to merely describe part of the data input process of Andreiko where an operator can select input data.

As such, for at least the reasons set forth above, the Andreiko reference would fail to support a *prima facie* case of obviousness under 35 U.S.C. §103(a) because Andreiko fails to teach or suggest all elements of the present invention as recited in claim 1. Claims 2-16 are allowable at least for depending from allowable independent claim 1. Accordingly, Applicants respectfully request that the rejections of claims 1-16 under 35 U.S.C. §103(a) be withdrawn and the claims allowed.

Independent claim 17

Claim 17, as previously presented, recites elements that are similar to elements recited in claim 1 and will be overcome for a similar rationale as set forth above. For example, as described above, the cited reference of Andreiko fails to teach or suggest maintaining the digital data set, electronically transmitting the digital data set to a viewing computer, and receiving data comprising changes to the graphical representation (a rendered image altered by manipulating the image graphically so as to generate changes to the graphical representation), the

data electronically transmitted from the viewing computer to the host computer, as recited in claim 17. Accordingly, Applicants respectfully request that the rejection of claims 17 under 35 U.S.C. §103(a) be withdrawn and the claim allowed.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 206-467-9600.

Respectfully submitted,

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